

Title (en)

Method of fast simulation and fitting of x-ray spectra from superlattices

Title (de)

Verfahren zur schnellen Simulation und Anpassung von Röntgenspektren von Supergittern

Title (fr)

Méthode pour simuler et ajuster rapidement des spectres aux rayons x des superréseaux

Publication

EP 1469302 B1 20060329 (EN)

Application

EP 03008687 A 20030416

Priority

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Abstract (en)

[origin: EP1469302A1] A method of simulation and/or fitting of X-ray scattering patterns comprising X-ray reflection and X-ray diffraction from multilayers with N repeating basic periods of a superlattice comprising a number L of single layers within each basic period, on a substrate, comprises the following steps: a) introducing the scattering matrix (SM) of one basic period of the superlattice, wherein the scattering matrix consists of the product of the scattering matrices of the single layers within the basic period; b) construction of superlattice eigenwaves using diagonalisation of the scattering matrix; c) using the superlattice eigenwaves to obtain an analytical representation of the wavefield and a solution of the boundary problem for the finite number N of basic periods of the superlattice; d) calculation of the intensity distribution of the scattering patterns by an analytical formula based on step c). <??>This allows the calculation of an X-ray scattering pattern of a periodically multilayered film sample on a substrate which is fast and simple to carry out. <IMAGE>

IPC 8 full level

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